Molding, Coremaking, and Casting Machine Operators

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What They Do

Molding, Coremaking, and Casting Machine Operators (Metal) tend machines that cut and form all types of metal parts. They operate or tend metal molding, casting, or coremaking machines to mold or cast metal products, such as pipes and motor parts. The machines include vacuum casting machines, turnover draw-type coremaking machines, conveyor-screw coremaking machines, and die casting machines.

Operators may tend grinding machines that remove excess material from the surface of machined products or presses that extrude metal through a die to form wire. These workers may place metal stock in a machine on which the operating specifications have already been set. They may watch one or more machines and make minor adjustments according to their instructions.

Molding, Coremaking, and Casting Machine Operators (Plastic) tend machines that transform plastic compounds into a variety of consumer goods such as toys, tubing, and auto parts. Operators produce these products by using plastic molding machines, such as compression or injection molding machines, of which injection molding is the most common. Operators monitor the many gauges on the injection-molding machines, adjusting different inputs, pressures, and speeds to maintain quality. The injection-molding machine heats and liquefies a plastic compound and forces it into a mold. After the part has cooled and hardened, the mold opens and the part is released.

Molding, Coremaking, and Casting Machine Operators (Plastic) usually use an extruding machine to produce long parts such as pipes or window frames. These machines force a plastic compound through a die that contains an opening with the desired shape of the final product. Blow-molding is another common plastics working technique. Blow-molding machines force hot air into a mold, that contains a plastic tube. As the air moves into the mold, the tube is inflated to the shape of the mold, and a plastic container is formed.

Tasks

Molding, Coremaking, and Casting Machine Operators (Metal)

- Start and operate furnace, oven, diecasting, coremaking, metal molding, or rotating machines to pour metal or create molds and casts.
- Remove casting from mold, mold from press, or core from core box, using tongs, pliers, hydraulic ram, or by inversion.
- Pour or load metal or sand into melting pot, furnace, mold, core box or hopper, using shovel, ladle, or machine.
- Inspect metal casts and molds, for cracks, bubbles, or other defects, and measures castings to ensure specifications are met.

EDD Employment Development Department State of California
LMID Labor Market Information Division "Your Information Source"

Molding, Coremaking, and Casting Machine Operators

- Clean, glue, and rack cores, ingots, or finished products for storage.
- Cut spouts and pouring holes in molds and sizes hardened cores, using saws.

Molding, Coremaking, and Casting Machine Operators (Plastic)

- Start machine that automatically liquefies plastic material in heating chamber, injects liquefied material into mold, and ejects molded product.
- Observe meters and gauges to verify specified temperatures, pressures, and press-cycle times.
- Turn valves and dials of machines to regulate pressure and temperature, to set press-cycle time, and to close press.
- Observe continuous operation of automatic machine and width and alignment of plastic sheeting to ensure side flanges.
- Weigh prescribed amounts of material for molded part and finished product to ensure specifications are maintained.
- Remove product from mold or conveyor, and clean and reload mold.
- Position mold frame to correct alignment and tubs containing mixture on top of mold to facilitate loading of molds.

*Detailed descriptions of these occupations may be found in the Occupational Information Network (O*NET) at online.onetcenter.org.*

Important Skills, Knowledge, and Abilities

- Operation and Control — Controlling operations of equipment or systems.
- Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- Mathematics — Using mathematics to solve problems.
- Production and Processing — Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- Equipment Selection — Determining the kind of tools and equipment needed to do a job.
- Repairing — Repairing machines or systems using the needed tools.
- Science — Using scientific rules and methods to solve problems.

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- Coordination — Adjusting actions in relation to others' actions.
- Production and Processing — Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
- Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Work Environment

Most Molding, Coremaking, and Casting Machine Operators (Metal and Plastic) work in areas that are clean, well lit, and well ventilated. They are on their feet much of the day and may do moderately heavy lifting. These workers operate powerful, high-speed machines that can be dangerous. However, risks are minimized if workers wear protective equipment, such as safety glasses and earplugs, to protect against flying particles of metal or plastic and against noise from the machines. Workers in the plastics industry who work near materials that emit dangerous fumes or dust must wear face masks or a self-contained breathing apparatus. Most operators work a 40-hour week. However, overtime is common during periods of increased production. Many shops operate more than one daily shift. Therefore, some operators may work nights and weekends.

What's the California Job Outlook?

The California outlook and wage below represent the occupation across all industries.

Standard Occupational Classification	Estimated Number of Workers 2004	Estimated Number of Workers 2014	Average Annual Openings	2006 Wage Range (per hour)
Molding, Coremaking, and Casting Machine Operators (Metal and Plastic)				
51-4072	13,100	12,800	330	$8.48 to $13.69

Wages do not reflect self-employment.
***Average annual openings** include new jobs plus net replacements.*
Source: www.labormarketinfo.edd.ca.gov, Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.

Trends

Employment of Molding, Coremaking, and Casting Machine Operators (Metal and Plastic) is expected to decline slightly through 2014. Job growth will continue to be influenced by automation. In order to remain competitive with foreign manufacturers, many firms are using new technologies, such as computer-controlled machine tools and robots to lower production costs. Labor-saving machinery tends to reduce the need for lower-skilled machine operators, because the tasks they perform are more easily automated. However, opportunities will continue to arise for those with experience on a wide variety of machines, and a good working knowledge of the properties of metals and plastics.

Training/Requirements/Apprenticeships

Most Molding, Coremaking, and Casting Machine Operators (Metal and Plastic) usually follow one of the following training paths:

- High school diploma or equivalent
- Extensive on-the-job training

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Some employers may offer formal training programs or apprenticeship opportunities. Also, industry associations offer voluntary certification through an exam process. The Institute for Metalworking Skills and the Society of Plastics Industry offer machine operator certification for their respective industries. Refer to Other Sources of Information.

Recommended High School Course Work
High school preparation courses in machine shop, blueprint reading, algebra, geometry, language arts, and computer technology are helpful.

Where Do I Find the Job?

Direct application to employers remains one of the most effective job search methods.

Use the *Search for Employers by Industry* feature on the *Career Center* page at www.labormarketinfo.edd.ca.gov to locate employers in your area. Search using keywords from the following manufacturing industry names to get a list of private firms and their addresses:

- All Other Miscellaneous Manufacturing
- All Other Plastics Product
- Dental Laboratories
- Employment Placement Agencies
- Jewelry (except Costume)
- Nonpackaging Plastics Film and Sheet
- Professional Employer Organizations
- Signs
- Sporting and Athletic Goods
- Surgical Appliance and Supplies
- Temporary Help Services
- Urethane and Other Foam Products

Search these **yellow page** headings for listings of private firms:

- Metal Castings
- Metal Cutting Tools
- Metal Fabricators
- Metal Rolling and Forming
- Metal Stamping
- Plastic Fabricators
- Plastics Molders, Injection
- Plastics Molders, Rotational

Where Can the Job Lead?

Advancement opportunities for operators generally takes the form of higher pay. Although, there are some limited opportunities for operators to advance to Multiple-Machine Operators, Set-Up Operators, or trainees for the more highly skilled position of Machinist, Tool and Die Maker, or Computer-Control Programmer or Operator. Also, skilled set-up workers may advance to supervisory positions.

Other Sources of Information

National Institute for Metalworking Skills
www.nims-skills.org

National Tooling & Machining Association
www.ntma.org

The Society of the Plastics Industry
www.socplas.org